



AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1.-39. (Canceled)

40. (New) A sensor for sensing an interface pressure between two bodies, the sensor comprising:

at least two intercommunicating detection zones, each detection zone being formed inside an inflatable envelope for interposing between said bodies and having two opposite regions spaced apart from one another by an amount that depends on an interface pressure between said bodies, each detection zone comprising a detector arranged to deliver information associated with the spacing between the opposite regions.

41. (New) A sensor according to claim 40, wherein the at least two detection zones comprises more than two detection zones.

42. (New) A sensor according to claim 40, wherein the number of detection zones ranges from 2 to 100.

43. (New) A sensor according to claim 40, wherein at least one envelope of a detection zone is made at least in part out of a material that is elastically deformable.

44. (New) A sensor according to claim 40, wherein the detection zones are arranged in a two-dimensional array.

45. (New) A sensor according to claim 40, wherein at least one of the detection zones comprises a detector arranged to measure the spacing between the two opposite regions of the envelope of the at least one detection zone.

46. (New) A sensor according to claim 40, wherein the detector is selected from an electrical detector; an optical detector; a magnetic detector; and a thermal detector.

47. (New) A sensor according to claim 46, wherein the detector comprises an electrical detector relying on contact or capacitance.

48. (New) A sensor according to claim 46, wherein the detector comprises an optical detector comprising at least one of an optical fiber detector, a diffraction detector, and an optical focus detector.

49. (New) A sensor according to claim 46, wherein the detector comprises a magnetic detector comprising at least one of an induction detector using a linear wire or a coil, and a Hall effect detector.

50. (New) A sensor according to claim 40, wherein the detector associated with a respective detection zone comprises a portion of an element that is common to a plurality of the detection zones, and an element specific to the respective detection zone.

51. (New) A sensor according to claim 50, wherein the element that is common to a plurality of the detection zones comprises a portion of an electrical conductor that is common to a plurality of the detection zones.

52. (New) A sensor according to claim 51, wherein the electrical conductor is connected to electrical ground.

53. (New) A sensor according to claim 50, wherein the element specific to the respective detection zone comprises an electrical conductor specific to the respective detection zone.

54. (New) A sensor according to claim 40, wherein the information associated with the spacing between the regions of the envelope comprises binary information.

55. (New) A sensor according to claim 40, wherein the detector comprises at least two elements disposed respectively on each of the inside faces of facing regions of the envelope.

56. (New) A sensor according to claim 55, wherein the at least two elements comprise electrical conductors made by etching on a medium coated in a conductor metal.

57. (New) A sensor according to claim 56, wherein the medium comprises polyimide and the conductor metal comprises nickel.

58. (New) A sensor according to claim 40, wherein at least one detection zone comprises a non-rectilinear electrical conductor.

59. (New) A sensor according to claim 58, wherein the electrical conductor extends in a zigzag configuration.

60. (New) A sensor according to claim 40, further comprising a fluid admission common to all of the detection zones of the sensor.

61. (New) A sensor according to claim 40, further comprising at least one fluid admission external to the detection zones and serving each of them externally.

62. (New) An apparatus for measuring the interface pressure between two bodies, the apparatus comprising:

the at least one sensor of claim 40; and

a pressure generator configured to deliver a fluid into the detection zones of the sensor at a pressure that varies in time.

63. (New) An apparatus according to claim 62, wherein the pressure generator is configured so as to cause the pressure to vary as a continuous periodic function.

64. (New) An apparatus according to claim 63, wherein the periodic function is one of a sinusoidal function and a sawtooth function.

65. (New) An apparatus according to claim 62, wherein the apparatus is configured to detect the last separation between facing regions of a detection zone among a set of detection zones, and to cause the pressure applied by the pressure generator to diminish.

66. (New) An apparatus according to claim 62, further comprising a processor system for processing information delivered by the detector of at least one detection zone.

67. (New) An apparatus according to claim 66, wherein the processor system is configured to respond to information delivered by the detector in a detection zone to determine the interface pressure between the two bodies at a given time at the location of said detection zone.

68. (New) An apparatus according to claim 66, wherein the processor system is configured to establish a map of interface pressures between the two bodies at a given time.

69. (New) An apparatus according to claim 68, wherein the processor system is configured to update said map when a detector changes state or at predefined time intervals.

70. (New) An apparatus according to claim 62, the apparatus being configured to limit the inflation flow rate of the detection zones.

71. (New) An apparatus according to claim 62, the apparatus being arranged to limit the quantity of inflation fluid in the detection zones.

72. (New) An apparatus according to claim 62, the apparatus being configured to detect a leak from one or more detection zones.

73. (New) An apparatus according to claim 62, wherein the processor system is configured to detect a soft point.

74. (New) An apparatus according to claim 62, wherein the processor system is configured to detect a hard point.

75. (New) A method of measuring the interface pressure between two bodies, the method comprising:

placing the sensor of claim 40 between the two surfaces;

delivering a fluid into the detection zones of the sensor and causing the pressure within the detection zones to vary; and

determining the interface pressure between the two bodies at a given instant at the location of a detection zone on the basis of information delivered by the detector of the detection zone.

76. (New) A method according to claim 75, wherein the method comprises measuring the interface pressure between two surfaces of one of two soft bodies, a soft body and a hard body, and within a soft body so as to determine the hardness of at least one of a textile, a lining material, an elastomer, and produce.

as in good cool.

77. (New) A method according to claim 76, wherein the method comprises measuring the interface pressure between two surfaces of at least one soft body selected from the following list: a portion of the human body or a body simulating such a portion, between a portion of the human body and an element interacting with the human body.

78. (New) A method according to claim 77, wherein the portion of the body or the body comprises at least one of the head of the fetus, muscles, skin, mucous membranes, and internal cavities.

79. (New) A method according to claim 77, wherein the element interacting with the human body comprises at least one of a seat, a mattress, garments, the inside of a helmet, elastic stockings, and fabric.

80. (New) A method according to claim 76, further comprising determining the ripening state of vegetables or fruit.

81. (New) An obstetric forceps comprising two blades each having an inside face configured to contact the head of a fetus or a body simulating such a head, and each having an outside face, the forceps including at least one sensor as defined in claim 40.

82. (New) A forceps according to claim 81, wherein the at least one sensor is disposed on the inside face of at least one blade.

83. (New) A forceps according to claim 81, wherein the at least one sensor is disposed on the outside face of at least one blade.

84. (New) A forceps according to claim 81, wherein the at least one sensor includes a plurality of detection zones disposed on the periphery of one of the faces of at least one blade.

85. (New) A forceps according to claim 81, wherein the blades are covered in at least one flexible protective cover which also covers the detection zones of the at least one sensor.

86. (New) A seating device comprising:
at least one sensor as defined in claim 40.

87. (New) A device according to claim 86, including a seat portion having the at least one sensor disposed thereon.

88. (New) A device according to claim 87, wherein the at least one sensor includes two sensors, and wherein the sensors share a common fluid admission.

89. (New) A device according to claim 86, wherein each sensor includes a plurality of detection zones disposed at the intersections of a grid.

90. (New) A device according to claim 89, wherein the detection zones are grouped together in twos or threes in elongate portions of the envelope.

91. (New) A method of preventing the formation of sores on a patient in the sitting position the method comprising:

placing at least one sensor as defined in claim 40 on a seat on which a patient is sitting;

measuring the interface pressure between the seat and the patient's buttocks;
and

at least one of modifying the points where the patient bears against the seat and modifying a portion of the seat.

92. (New) A clamping or grasping device, the device comprising at least one sensor as defined in claim 40.

93. (New) A device according to claim 92, further comprising at least one clamp.

94. (New) A method for grasping comprising:
grasping an article using a device provided with at least one sensor as defined in claim 40; and
measuring the interface pressure between the device and the article.

95. (New) A system comprising:
a sensor as defined in claim 40; and

a device chosen from at least one of an anti-sore device, a mattress, a seat, a device for grasping a body that is at least one of soft, of irregular shape, and of fragile nature, a hydraulic lifting device, a pneumatic lifting device, a device for placing in an internal cavity of the human body, and a device for measuring the degree of ripening of produce.

96. (New) A system according to claim 95, wherein the device comprises a seat comprising at least one of a car seat, garments, helmet, elastic stockings, and a fabric.